Forest Insect & Disease Management

Evaluation Report
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EVALUATING THE EFFECT OF OVERSTORY CUTTING ON THE INCIDENCE OF THE WHITE PINE WEEVIL
Pissodes strobi (Peck)

Second Interim Report
by

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1977

INTRODUCTION

This report evaluates white pine weevil damage incidence under different hardwood overstory levels on the Black River Falls State Forest, Wisconsin. The initial report (Hastings, 1976)[1/] reviewed the results of the first two years following the overstory removal. That report showed a substantial response in leader length and diameter growth of the pine with respect to the amount of overstory removed.

The objective of this project is to evaluate which hardwood overstory level optimized growth of white pine, Pinus strobus L., and yet limits white pine weevil damage to a nominal degree. The sample trees ranged from 4 to 12 feet in height at the beginning of the study in 1974.

METHOD

Five different levels of overstory were used:

Control (no removal of overstory) - B.A. is greater than 70.
0 ft^2 B.A. hardwood overstory

1/ Hastings, A. R. 1976. Evaluating the effect of release cuttings on white pine weevil infestation. Black River Falls, Wisconsin. Interim Report S-7-76.

30 ft^2 B.A. hardwood overstory
50 ft^2 B.A. hardwood overstory
70 ft^2 B.A. hardwood overstory

There were two replications of each overstory level. Each of the 10 blocks contained ten 1/50 acre plots. A sample of white pine trees on the plots were measured for leader length and diameter. Weevil damage, present or absent, was also recorded for each sample tree.

1977 RESULTS

The average leader growth was less in 1977 than in 1975 possibly due to the drought in the Black River Falls area (Fig. 1). The average growth in 1977 was less than 11 inches in the zero overstory treatment. The area has had less cumulative precipitation, April through September, during each of the past years than the 50-year average for those months.

A comparison of leader length and leader diameter may be found in Table 1 for 1975 and 1977. The only weevil incidence occurred in the 30 ft^2 B.A. treatment, but the levels were very nominal. Only four of the 199 trees were damaged by the weevil in 1977 (Table 2).

Table 1. -- Average leader length and diameter growth of white pine saplings for five densities of hardwood overstory in 1975 and 1977.

Parameter (inches)	Basal Area (ft^2) of overstory				
1975 Leader length	13.70	12.50	7.90	6.70	5.90
1975 Leader diameter	0.20	0.17	0.14	0.13	0.11
1977 Leader length	10.86	7.77	6.81	4.56	3.04
1977 Leader diameter	0.22	0.15	0.15	0.11	0.09

Table 2. -- Number of weevilled trees in white pine reproduction under five hardwood overstory densities, 1977.

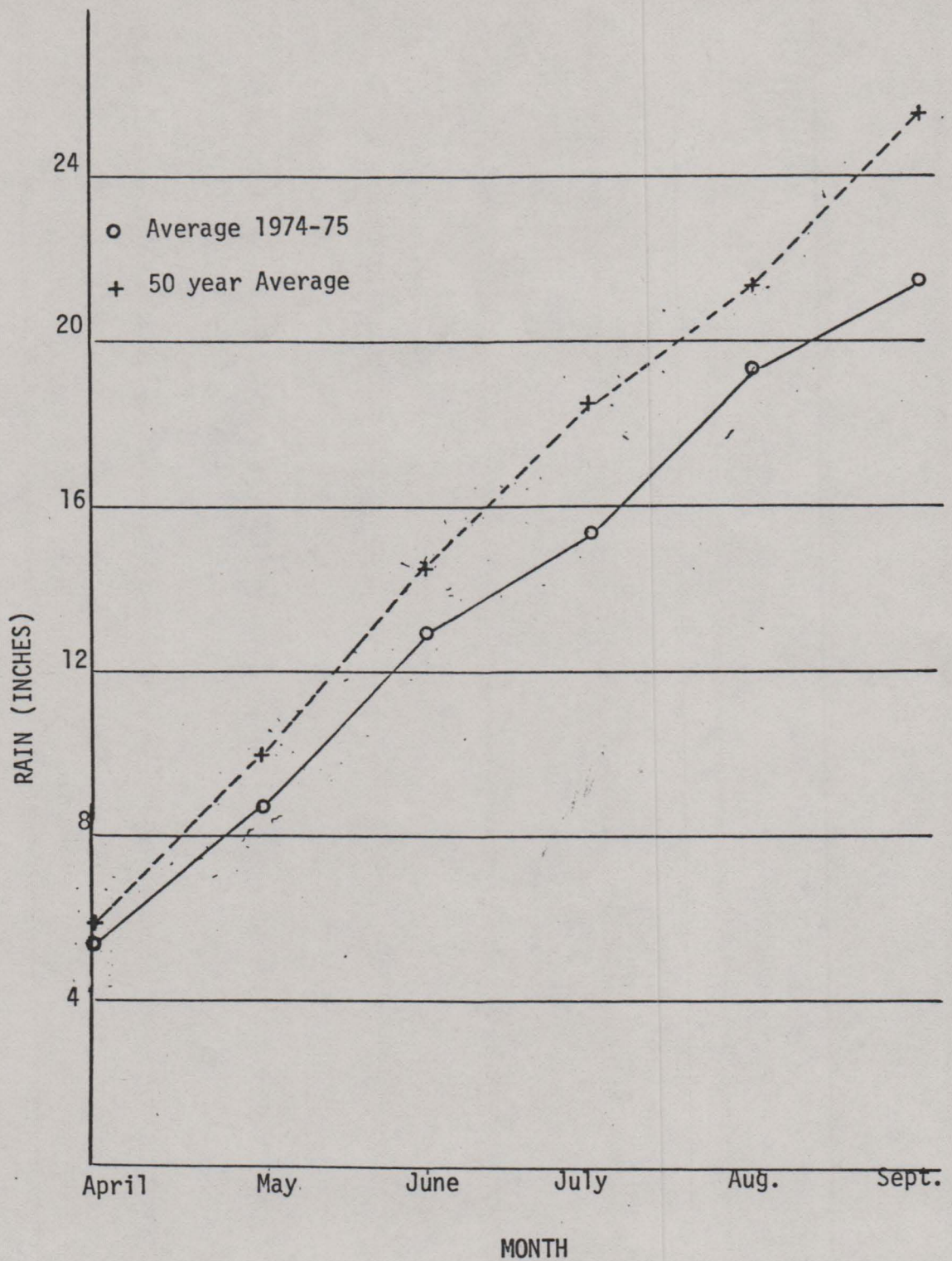
Trees	0	30	50	70	Control
Total/treatment	105	199	104	192	153
No. weevilled	0	4	0	0	0

RECOMMENDATIONS

1. Record weevil incidence and measure leader diameter and lengths again in 1978, and complete 5 year final report.

2. At the end of the 5 year evaluation Forest Insect and Disease Management will consider extending the survey until the pines have attained butt logs of 18 feet.

Figure 1. Monthly cumulative rainfall 1974-1977 with 50 year average, Black River Falls, WI. 1)



1/ (Wisconsin Department of Natural Resources data)